

REMARKS

I. Introduction

Claims 15-28 are currently pending in the present application. Claims 17, 20 and 25-28 have been withdrawn from further consideration by the Examiner. Claims 15, 16, 18, 19 and 21-24 are under consideration and stand rejected.

II. REJECTIONS OF CLAIMS 15, 16, 18, 19 and 21-24 under § 112

Claims 15, 16, 18, 19 and 21-24 were rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement and the written description requirement.

With respect to the enablement requirement, the Examiner contends that, regarding claims 15 and 16, “[o]ne skilled in the art could not understand [the] limitation or how and in what manner the ‘anticipated track,’ ‘anticipated path,’ or ‘anticipated steering reaction’ are determined, or based on.” However, Applicant respectfully submits that the entire disclosure of the present application directly involves the “anticipated track,” “anticipated path,” and “anticipated steering reaction,” and these claimed features are exhaustively detailed in the specification, some examples of which are provided below:

According to the procedure described below, a warning or an intervention in the vehicle movement takes place when it is estimated that the driver is no longer able to hold the vehicle in the lane using normal corrections. To do this, a check is made whether, while considering normal corrections of the driver, i.e. a certain steering angle which the driver normally uses to correct his track, the vehicle crosses the edge markings or not. The **future track** of the vehicle is then specifically calculated while taking into consideration these corrections by the driver that are to be expected, is compared to the detected edge markings, and a warning is emitted if the future track of the vehicle crosses the edge markings. In the determination of the value represented by the correction of the track by the driver that is to be expected, in one supplementary exemplary embodiment, the state of attentiveness of the driver is taken into consideration. In this context, the value is the greater (this corresponds to a more forceful correction), the more attentive the driver is, and the less, the more inattentive the driver is. In this context, the attentiveness of the driver is derived, depending on the exemplary

embodiment, from steering wheel movements, head posture, accelerator motion, etc. (Original Specification, p. 4, l. 24 – p. 5, l. 9).

An especially simple implementation is that an average value of the correction measures of the driver, such as a steering angle value or a transverse acceleration value is predefined, and is taken into consideration in determining the path. (Original Specification, p. 2, l. 13–16).

In subsequent step 102 the future track of the vehicle is then calculated. The representation of this track also takes place using the function type that is used for the sequence of the lane markings. Accordingly, for example, from the current vehicle speed, the current steering angle or the transverse acceleration, etc., the parameters of the function are calculated which calculate the pattern of at least one track (track of the left and/or right vehicle edge) of the vehicle. An additional variable, that is evaluated for the calculation of the parameters, is the predefined correction value that is preferably a function of the attentiveness state, which is worked in, for example, by the correction of the steering angle. In subsequent step 104 the two functions are then checked as to whether they intersect or whether the future vehicle track lies across the pattern of the edge markings beyond a certain measure, or whether the future vehicle track is approaching the edge markings up to a certain measure. (Original Specification, p. 6, l. 31 – p. 7, l. 12).

Figure 3 shows two traffic situations, according to Figure 3a, no driver warning taking place, and according to Figure 3b, a driver warning taking place. Future lane 202 calculated for vehicle 200, which is determined, as shown above, taking into account possible corrections by the driver (e.g. fixed steering angle value), in Figure 3a shows no crossing with the edge marking shown as the dashed line, whereas in Figure 3b such a crossing is present. According to that, in Figure 3b the driver is warned at the time shown or a vehicle intervention is undertaken, since the driver will probably not hold the vehicle in the lane only by normal corrections, while in Figure 3a the warning does not take place because the driver will be able to do so. (Original Specification, p. 7, l. 27 – p. 8, l. 3).

It is particularly advantageous if the extent of the assumed correcting motion of the driver is a function of his state of attentiveness. In the case of a watchful driver, the correcting movement to be expected will lie, for example, at a steering angle of 10^0 and a transverse acceleration of 2 m/sec^2 , whereas this value is clearly lower in the case of an inattentive driver. The state of attentiveness of the driver is derived, for example, from steering

movements, accelerator movements, body posture, etc, and then, as a function of the degree of attentiveness, the correcting values are determined, and these are incorporated in the calculation of the future track of the vehicle. (Original Specification, p. 8, l. 5–16).

As can be seen from above, the specification unequivocally describes the details of “determining an anticipated track of a vehicle, taking into account a future, anticipated path correction by the driver,” as recited in claim 15, and “the anticipated track of the vehicle is determined based on a future, anticipated steering,” as recited in claim 16. Furthermore, more detailed descriptions relating to the “anticipated track,” “anticipated path,” and “anticipated steering reaction” are found in exhaustive detail on page 8, l. 18 – p. 15, l. 2.

For at least the foregoing reasons, Applicant submits that the rejection based on the enablement requirement is clearly incorrect and should be withdrawn.

With respect to the written description requirement, the Examiner contends that, regarding claims 15 and 16, the term “anticipated” is new matter because the “original disclosure fails to provide adequate support for the term.” Applicant respectfully submits that the original disclosure clearly and explicitly supports the term “anticipated,” as evidenced by the above-quoted passages, one of which is reproduced below:

According to the procedure described below, a warning or an intervention in the vehicle movement takes place when it is estimated that the driver is no longer able to hold the vehicle in the lane using normal corrections. To do this, a check is made whether, while considering normal corrections of the driver, i.e. a certain steering angle which the driver normally uses to correct his track, the vehicle crosses the edge markings or not. The future track of the vehicle is then specifically calculated while taking into consideration these corrections by the driver that are to be expected, is compared to the detected edge markings, and a warning is emitted if the future track of the vehicle crosses the edge markings. In the determination of the value represented by the correction of the track by the driver that is to be expected, in one supplementary exemplary embodiment, the state of attentiveness of the driver is taken into consideration. In this context, the value is the greater (this corresponds to a more forceful correction), the more attentive the driver is, and the less, the more inattentive the driver is. In this context, the attentiveness of

the driver is derived, depending on the exemplary embodiment, from steering wheel movements, head posture, accelerator motion, etc. (Original Specification, p. 4, l. 24 – p. 5, l. 9).

As can be seen from the above, the original specification clearly describes **corrections by the driver that are to be expected** and the associated future track of the vehicle, which disclosure absolutely supports the term “anticipated” recited in claims 15 and 16.

For at least the foregoing reasons, Applicant submits that the rejection based on the written description requirement is clearly incorrect and should be withdrawn.

III. REJECTION OF CLAIMS 15, 16, 18 and 21 under § 102(b)

Claims 15, 16, 18 and 21 were rejected under 35 U.S.C. § 102(b) as being anticipated by Breed (WO 00/54008). Applicant submits that this rejection should be withdrawn for at least the following reasons.

To anticipate a claim under § 102(b), a single prior art reference must identically disclose each and every claim element. See Lindeman Maschinenfabrik v. American Hoist and Derrick, 730 F.2d 1452, 1458 (Fed. Cir. 1984). If any claimed element is absent from a prior art reference, it cannot anticipate the claim. See Rowe v. Dror, 112 F.3d 473, 478 (Fed. Cir. 1997). Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claim invention, arranged exactly as in the claim. Lindeman, 730 F.2d 1458 (Emphasis added). Additionally, not only must each of the claim limitations be identically disclosed, an anticipatory reference must also enable a person having ordinary skill in the art to practice the claimed invention, namely the inventions of the rejected claims, as discussed above. See Akzo, N.V. v. U.S.I.T.C., 1 U.S.P.Q.2d 1241, 1245 (Fed. Cir. 1986). To the extent that the Examiner may be relying on the doctrine of inherent disclosure for the anticipation rejection, the Examiner must provide a “basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristics necessarily flow from the teachings of the applied art.” (See M.P.E.P. § 2112; emphasis in original; see also Ex parte Levy, 17 U.S.P.Q.2d 1461, 1464 (Bd. Pat. App. & Inter. 1990)).

Independent claim 15 recites, in relevant parts, “determining **an anticipated track of a vehicle, taking into account a future, anticipated path correction by the driver**; deriving at least one of the driver information and the vehicle intervention from the at least one boundary of the traffic lane and **the anticipated track of the vehicle**; and at least one of: a) providing the driver information when the vehicle one of leaves the traffic lane and threatens to leave the traffic lane; and b) performing the vehicle intervention when the vehicle one of leaves the traffic lane and threatens to leave the traffic lane.” As clearly stated in claim 15, and as exhaustively explained in the Specification, the present invention involves determining a future track of the vehicle, which anticipated future track takes into account the independent path correction that is expected from the driver, i.e., the future track of the vehicle is determined based on at least two components: a) the preliminary future path of the vehicle calculated based on, e.g., the current vehicle speed, the current steering angle, or the transverse acceleration; and b) the anticipated path correction that is expected from the driver.

In contrast to the above-recited features of claim 15, Breed simply does not teach or suggest “determining **an anticipated track of a vehicle, taking into account a future, anticipated path correction by the driver**.” While the Examiner cites several portions of Breed as teaching the above-recited claimed feature, e.g., Fig. 4; p. 4, l. 33-39; p. 31, l. 22-24; and p. 38, l. 6-14, these cited portions have nothing to do with “determining **an anticipated track of a vehicle, taking into account a future, anticipated path correction by the driver**.” For example, p. 4, l. 33-36 merely indicate that “the operator will continue to control his vehicle provided he or she remains within certain constraints . . . [which] are like a corridor,” and “[a]s long as the operator maintains his vehicle within the allowed corridor, he or she can operate that vehicle without interference from the control system.” The description associated with Fig. 4 indicates that “[e]ach corridor is defined by lines 14,” and that an alarm may be sounded when the vehicle crosses one of the line 14, thereby alerting “the driver to . . . possibly correct the steering of the vehicle to return the vehicle to within the corridor.” (P. 38, l. 6-14). The passage of p. 31, l. 22-24 merely deals with “the problem of the incapacitated driver.”

As can be seen from above, nothing in Breed actually teaches or suggests “determining **an anticipated track of a vehicle, taking into account a future, anticipated path correction by the driver**.” For at least this reason, claim 15 and its dependent claims

16, 18 and 21 are not anticipated by Breed. Withdrawal of the anticipation rejection is respectfully requested.

IV. REJECTIONS OF CLAIM 19

Claim 19 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Breed in view of Hiwatashi (U.S. Patent No. 6,370,474). Applicant submits that this obviousness rejection should be withdrawn for at least the following reasons.

In rejecting a claim under 35 U.S.C. § 103(a), the Examiner bears the initial burden of presenting a prima facie case of obviousness. In re Rijckaert, 9 F.3d 1531, 1532, 28 U.S.P.Q.2d 1955, 1956 (Fed. Cir. 1993). To establish prima facie obviousness, three criteria must be satisfied. First, there must be some suggestion or motivation to modify or combine reference teachings. In re Fine, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). This teaching or suggestion to make the claimed combination must be found in the prior art and not based on the application disclosure. In re Vaeck, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). Second, there must be a reasonable expectation of success. In re Merck & Co., 800 F.2d 1091, 231 U.S.P.Q. 375 (Fed. Cir. 1986). Third, the prior art reference(s) must teach or suggest all of the claim limitations. In re Royka, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974). To the extent the Examiner may be relying on the doctrine of inherent disclosure in support of the obviousness rejection, the Examiner must provide a “basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristics necessarily flow from the teachings of the applied art.” (See M.P.E.P. § 2112; emphasis in original; see also Ex parte Levy, 17 U.S.P.Q.2d 1461, 1464 (Bd. Pat. App. & Inter. 1990)).

Claim 19 depends on claim 15. As noted above, Breed clearly fails to teach or suggest the claimed features of independent claim 15. In addition, Hiwatashi clearly does not remedy the deficiencies of Breed as applied against parent claim 15. Accordingly, even if one assumes for the sake of argument that there were some motivation for combining the teachings of Breed and Hiwatashi in the manner asserted by the Examiner (which is not conceded by the Applicant), dependent claim 19 is not rendered obvious by the combination of Breed and Hiwatashi, and withdrawal of the obviousness rejection is requested.

V. REJECTIONS OF CLAIM 22

Claim 22 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Breed in view of Jeon (U.S. Patent No. 6,487,501). Applicant submits that this rejection should be withdrawn for at least the following reasons.

In rejecting a claim under 35 U.S.C. § 103(a), the Examiner bears the initial burden of presenting a prima facie case of obviousness. In re Rijckaert, 9 F.3d 1531, 1532, 28 U.S.P.Q.2d 1955, 1956 (Fed. Cir. 1993). To establish prima facie obviousness, three criteria must be satisfied. First, there must be some suggestion or motivation to modify or combine reference teachings. In re Fine, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). This teaching or suggestion to make the claimed combination must be found in the prior art and not based on the application disclosure. In re Vaeck, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). Second, there must be a reasonable expectation of success. In re Merck & Co., 800 F.2d 1091, 231 U.S.P.Q. 375 (Fed. Cir. 1986). Third, the prior art reference(s) must teach or suggest all of the claim limitations. In re Royka, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974). To the extent the Examiner may be relying on the doctrine of inherent disclosure in support of the obviousness rejection, the Examiner must provide a “basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristics necessarily flow from the teachings of the applied art.” (See M.P.E.P. § 2112; emphasis in original; see also Ex parte Levy, 17 U.S.P.Q.2d 1461, 1464 (Bd. Pat. App. & Inter. 1990)).

Claim 22 depends on claim 15. As noted above, Breed clearly fails to teach or suggest the claimed features of independent claim 15. In addition, Jeon clearly does not remedy the deficiencies of Breed as applied against parent claim 15. Accordingly, even if one assumes for the sake of argument that there were some motivation for combining the teachings of Breed and Jeon in the manner asserted by the Examiner (which is not conceded by the Applicant), dependent claim 22 is not rendered obvious by the combination of Breed and Jeon, and withdrawal of the obviousness rejection is requested.

VI. REJECTIONS OF CLAIMS 23 & 24

Claims 23 and 24 were rejected under 35 U.S.C. § 103(a) as being unpatentable

over Breed in view of Russell (U.S. Patent No. 6,675,094). Applicant submits that this obviousness rejection should be withdrawn for at least the following reasons.

In rejecting a claim under 35 U.S.C. § 103(a), the Examiner bears the initial burden of presenting a prima facie case of obviousness. In re Rijckaert, 9 F.3d 1531, 1532, 28 U.S.P.Q.2d 1955, 1956 (Fed. Cir. 1993). To establish prima facie obviousness, three criteria must be satisfied. First, there must be some suggestion or motivation to modify or combine reference teachings. In re Fine, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). This teaching or suggestion to make the claimed combination must be found in the prior art and not based on the application disclosure. In re Vaeck, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). Second, there must be a reasonable expectation of success. In re Merck & Co., 800 F.2d 1091, 231 U.S.P.Q. 375 (Fed. Cir. 1986). Third, the prior art reference(s) must teach or suggest all of the claim limitations. In re Royka, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974). To the extent the Examiner may be relying on the doctrine of inherent disclosure in support of the obviousness rejection, the Examiner must provide a “basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristics necessarily flow from the teachings of the applied art.” (See M.P.E.P. § 2112; emphasis in original; see also Ex parte Levy, 17 U.S.P.Q.2d 1461, 1464 (Bd. Pat. App. & Inter. 1990)).

Claims 23 and 24 ultimately depend on claim 15. As noted above, Breed clearly fails to teach or suggest the claimed features of independent claim 15. In addition, Russell clearly does not remedy the deficiencies of Breed as applied against parent claim 15. Accordingly, even if one assumes for the sake of argument that there were some motivation for combining the teachings of Breed and Russell in the manner asserted by the Examiner (which is not conceded by the Applicant), dependent claims 23 and 24 are not rendered obvious by the combination of Breed and Russell, and withdrawal of the obviousness rejection is requested.

CONCLUSION

In light of the foregoing, it is respectfully submitted that all of the presently pending claims 15, 16, 18, 19 and 21-24 under consideration are in condition for allowance. Prompt reconsideration and allowance of the present application are therefore earnestly solicited.

Respectfully submitted,

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